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EXAMINER	
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3746	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/809,719	TEETS ET AL.	
	Examiner	Art Unit	
	ANDREW NGUYEN	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4/18/08* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is a second office action in response to applicant's amendment filed 4/18/08.

Claims 1-16 have been cancelled. New claims 17-37 have been presented.

Specification

1. The amendment filed 4/18/08 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows:
    - Pg 4: a single spool compressor turbine rotor into
    - Pg 25: (#1 rotor spool, shaft ... device)
    - Pg 11: increased cycle pressure ratio
    - Pg 15: with case attachment
    - Pg 20: is ID; OD bearing race ... 54; and the other side ... device
    - Pg 21: 84; 71, diffuser 34
    - Pg 22: 34; 70; 84; interconnections of; A, 2nd spool ... 140A; combustor 86A and combustor housing
    - Pg 25; this nozzle and
    - Pg 26: 82
    - Pg 27: compressor rotor 122A; 120, shaft; 19A; 63A; 73
    - Pg 28: 146; 145
    - Pg 29: insulation block detail 202

- Pg 32: 212; flow 53

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Objections

2. Claims 17, 19, 24, 26, 29, and 36-37 are objected to because of the following informalities: The following items lack antecedent basis:

   - Claim 17: "said power rotor spool turbine rotor"
   - Claim 19: "said power rotor spool", "power spool compressor"
   - Claim 24: "said turbo charger ...", "said power rotor spool compressor"
   - Claim 26: "said shaft seal"
   - Claim 29: "said bearing-seal housing subassembly"
   - Claim 36-37: "said rotor spindle"

   Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 25, 27, 32, and 35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time

the application was filed, had possession of the claimed invention. A "heat exchanger" (claim 25), a "multi-piece generally radial seal plate having a minimum of three circumferential sections" (claim 27), "an outboard threaded end" (claim 32), and "one end is axially thread adjustable" (claim 35) were not described in the originally filed specification.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida).

In reference to claim 17:

Mowill teaches:

> *A gas turbine engine for generating electricity, comprising: an engine body; a #2 rotor spool within said engine body* (HP spool, Fig 1 and 2)*, having an alternator rotor with retained permanent magnets* (20)*, a bladed compressor rotor having an air inlet and exit* (14) *and a bladed turbine rotor having a gas inlet and exit* (16)*; an electrical stator within said engine body* (20)*, a combustion system within the said engine body* (22)*, receives compressor discharge air from the said #2*

rotor spool, bladed compressor rotor exit for combusting supplied fuel and delivering of combusted gas energy to the said power rotor spool turbine rotor (Fig 2)*; a # 1 rotor spool within said engine body* (LP spool, Fig 1 and 2)*, having a bladed compressor rotor with an air inlet and exit* (34)*, a compressor rotor shaft and a bladed turbine rotor with a gas inlet and exit* (36)*; an air intake in said engine body with communication to said #1 rotor spool compressor inlet* (inherent)*; a #1 rotor spool turbine gas discharge duct within said engine body having fluid communication with said #1 rotor spool turbine rotor exit* (38)*; a ducting means to deliver the said #1 rotor spool compressor rotor exit pressurized air flow to the inlet of the said #2 rotor spool compressor rotor inlet* (42)*; a ducting means to deliver said #2 spool turbine rotor exiting gas energy to the said #1 rotor spool turbine rotor inlet* (56, 58)

Yoshida teaches:

having electrical wire, laminats of magnetically attracted material, and said stator is coaxially about and in close proximity of the said alternator rotor \where relative rotation to the said stator inner diameter causes flux change and subsequent electricity generation within the said wires (col 4 lines 1-17)

Mowill fails to teach the details of the generator. However, generators were known in the art to comprise magnets, electrical wire, and magnetic material. It was also known to generate electricity through a flux change. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the

generator of Mowill with magnets, electrical wire, and magnetic material in order to have the generator function properly, as taught by Yoshida.

In reference to claim 18:

Mowill teaches:

wherein the said ducting means to deliver the said #1 rotor spooi compressor rotor exit pressurize air flow to the inlet of the said #2 rotor spool compressor rotor inlet incorporates a variable area fluid flow control device. (duct 42)

7. Claims 19-20, 24, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida) and US Patent 4,359,871 to Strass (Strass)

In reference to claim 19:

Mowill teaches:

A gas turbine engine for generating electricity, comprising: an engine body; a #2 rotor spool within said engine body (HP spool, Fig 1 and 2)*, having an alternator rotor with retained permanent magnets* (20)*, a bladed compressor rotor having an air inlet and exit and a bladed turbine rotor having a gas inlet and exit* (14)*; an electrical stator within said engine body* (20)*; a combustion system within the said engine body* (22)*, receives compressor discharge air from the said power rotor spool, bladed compressor rotor exit for combusting supplied fuel and delivering of combusted gas energy to the said #2 rotor spool turbine rotor* (16)*; a #1 rotor spool within said engine body* (LP spool, Fig 1 and 2)*, having a bladed*

compressor rotor with an air inlet and exit (34)*, a compressor rotor shaft and a bladed turbine rotor with a gas inlet and exit* (36)*; an air intake in said engine body with communication to said #1 rotor spool compressor inlet* (inherent)*; a turbine gas discharge duct within said engine body having fluid communication with said #1 rotor spool, turbine rotor exit* (38)*; a ducting means to deliver the said #1 rotor spool compressor rotor exit pressurized air flow to the inlet of the said #2 rotor spool compressor rotor inlet* (42)*; a ducting means to deliver said #2 spool turbine rotor exiting gas energy to the said #1 rotor spool turbine rotor inlet* (56, 58)*;*

Yoshida teaches:

having electrical wire, laminats of magnetically attracted material, and said stator is coaxially about and in close proximity of the said alternator rotor \where relative rotation to the said stator inner diameter causes flux change and subsequent electricity generation within the said wires (col 4 lines 1-17)

Mowill fails to teach the details of the generator. However, generators were known in the art to comprise magnets, electrical wire, and magnetic material. It was also known to generate electricity through a flux change. It would have been obvious to one of ordinary skill in the art at the time of the invention to one of ordinary skill in the art at the time of the invention to provide the generator of Mowill with magnets, electrical wire, and magnetic material in order to have the generator function properly, as taught by Yoshida.

Strass teaches:

a bearing - seal housing assembly having a rotor bearing and rotor shaft labyrinth seal, within said engine body; furthermore the said bearing-seal housing assembly is positioned coaxially about the said #2 rotor spool between the alternator rotor and power spool compressor inlet (Figs 1 and 3; bearing 26 between compressor 4 and generator 6; bearing can be equipped with labyrinth seals – col 6 lines 57-63)

Mowill fails to teach a bearing - seal assembly between the alternator and compressor and a labyrinth seal. However, it was known in the art to place a bearing assembly in between the compressor inlet and the alternator in order to structurally couple the static and rotating components. It was further known in the art to use labyrinth seals in order to seal the bearing compartments against the gas chambers. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the gas turbine of Mowill with a bearing assembly in between the compressor inlet and alternator rotor in order to structurally couple the rotating and static components and a labyrinth seal in order to seal off the bearing compartments, as taught by Strass.

In reference to claim 20:

Strass further teaches:

wherein the said bearing-seal housing assembly is incorporated within the said #2 rotor spool creating a module (Fig 3; 26) *and is axially insertable into the said engine body* (bearing 26 is capable of being axially inserted into the engine body 18c; i.e. bearing is small enough to fit in axially through an opening in 18c).

In reference to claim 24:

Mowill further teaches:

wherein the said ducting means to deliver said turbo charger compressor rotor exit, pressurized airflow to the said power rotor spool compressor inlet, a vaneless scroll flow area is incorporated to induce an air flow preswirl to the said #2 rotor spool compressor inlet. (Fig 1; duct 42 feeds compressor 14, flow must turn before entering compressor, causing "preswirl")

In reference to claim 25:

Mowill further teaches:

a heat exchanger having one of two sides of the heat exchanger with air fluid flow communication between the receiving said #2 spool compressor flow exit air and delivery of heat energy air flow supply to the said #2 spool turbine rotor gas inlet. (col 1 lines 52-59)

8. Claim 21 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida) and US Patent 4,359,871 to Strass (Strass) as applied to claim 19 above, and further in view of US Patent 5,085,521 to Singh (Singh)

In reference to claim 21:

Singh teaches:

wherein a oil squeeze film damper (20, Fig 2) *is incorporated between the said bearing-seal housing assembly outer diameter* (13) *and the adjacent inner diameter of the said engine body* (16).

Mowill fails to teach an oil squeeze film damper cavity between the inner diameter of the engine housing and outer diameter of the bearing housings. However, Singh teaches using an oil film damper in order to provide damping on the bearing assembly. It would have been obvious to one of ordinary skill in the art at the time of the invention to include an oil squeeze film damping cavity in order to introduce oil to the cavity for damping action on the bearing assembly (col 2 lines 37-38), as explicitly taught by Singh.

9. Claims 22, 29-30 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida) and US Patent 4,359,871 to Strass (Strass) as applied to claim 19 above, and further in view of US Patent 5,246,352 to Kawakami (Kawakami) and US Patent 6,135,639 to Dede (Dede)

In reference to claim 22:

Kawakami teaches:

wherein a oil squeeze film damper is incorporated about the outer diameter of the said retained bearing within the said bearing - seal housing assembly adjacent inside diameter; (col 4 lines 43-65)

Mowill fails to teach an oil squeeze film damper about the outer diameter of the bearing within the bearing - seal housing. However, Kawakami teaches multiple oil film dampers between multiple components, including between a bearing and its housing. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the gas turbine of Mowill with an oil squeeze film damper in between the bearing and housing in order to dampen vibration, as taught by Kawakami.

Dede teaches:

a pin means to retain the said damped bearing outer diameter to the coacting said bearing-seal housing inner diameter. (col 1 lines 29-31)

Mowill fails to teach a bearing with a pin. However, it was known in the art to use a pin with a bearing in order to prevent rotation. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the bearing of Mowill/Strass with a pin in order to prevent rotation, as taught by Dede.

In reference to claim 29:

Mowill in view of Yoshida and Strass teaches:

A gas turbine engine for generating electricity, comprising: an engine body; a rotor spool within said engine body having an alternator rotor with retained permanent magnets, a blade compressor rotor with a shaft and a bladed turbine rotor; an electrical stator within said engine body rotor, having laminats of magnetically attracted material, and electrical wire is located coaxial about and in close proximity to the said alternator rotor and relative rotation within the said

stator, cause flux change and subsequent electrical power generation within the said stator wire; a combustion system within said engine body, receives pressurized air flow from said rotor spool compressor rotor exit for combusting supplied fuel and delivers the combusted gas energy to the said rotor spool turbine rotor; a compressor inlet within said engine body and having fluid communication with the said rotor spool, compressor inlet; a turbine exhaust gas duct within said engine body and having fluid communication with the power turbine exhaust gas; a bearing -seal housing assembly having a retained shaft bearing and shaft seal, labyrinth seal within said engine body; furthermore the said bearing - seal housing subassembly is incorporated about the said rotor spool between the said alternator rotor and said compressor rotor; (see rejection of claim 19 above)

Kawakami teaches:

a oil squeeze film dampening means between the said bearing-seal housing assembly inner diameter and retained adjacent bearing outer diameter; (see rejection of claim 22 above)

Dede teaches:

a pin means to retain the said bearing outer diameter to the co acting adjacent said bearing-seal housing (see rejection of claim 22 above)

In reference to claim 30:

Kawakami teaches:

wherein the said bearing- seal housing assembly has oil squeeze film dampening between the outer diameter of the said bearing - seal housing assembly and adjacent inside receiving diameter area of the said engine body. (see rejection of claim 22 above)

10. Claims 23, 26 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida) and US Patent 4,359,871 to Strass (Strass) as applied to claim 19 above, and further in view of US Patent 5,246,352 to Kawakami (Kawakami)

In reference to claim 23:

Kawakami teaches:

wherein oil squeeze film dampers are incorporated in both the said bearing - seal housing assembly outer diameter and the said retained rotor bearing outer diameter within the said bearing-seal housing assembly. (col 4 lines 43-65) Mowill fails to teach an oil squeeze film damper about the bearing housing outer diameter and rotor bearing outer diameter. However, Kawakami teaches multiple oil film dampers between multiple components. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the gas turbine of Mowill with an oil squeeze film damper in between the bearing housing and retained rotor bearing outer diameter in order to dampen vibration, as taught by Kawakami.

In reference to claim 26:

Kawakami teaches:

wherein the said shaft seal, labyrinth type outer diameter has resilient retention-sealing means in the said bearing -seal housing. (O-rings 33)

11. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida) and US Patent 4,359,871 to Strass (Strass) as applied to claim 19 above, and further in view of US Patent 4,704,075 to Johnston et al (Johnston)

In reference to claim 27:

Johnston teaches:

A multipiece seal plate (40, 60)

Mowill in view of Yoshida and Strass teaches everything except for a multipiece seal plate. However, it was known in the art to use multipiece seal plates in between compressors and turbines in order to prevent gases from escaping the main flowpath, as Johnston teaches. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the turbine of Mowill/Yoshida/Strass with a multipiece seal plate in order to prevent the escape of gases from the main flowpath, as taught by Johnston.

12. Claims 28 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida)

and US Patent 4,359,871 to Strass (Strass) as applied to claim 19 above, and further in view of US Patent 5,096,376 to Mason et al (Mason)

In reference to claim 28:

Mason teaches:

wherein the said #1 rotor spool having a rotor shaft and compressor rotor, incorporates an air supply channel to deliver compressor discharge air as a buffer air means to the said bearing-seal housing retained rotor shaft labyrinth seal. (Fig 2; labyrinth seal 34 supplied with compressor discharge air)

Mowill in view of Yoshida and Strass fails to teach an air supply channel to deliver compressor discharge air to the labyrinth seal. However, it was known in the art to flow compressor discharge air to a labyrinth seal. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the turbine of Mowill/Yoshida/Strass with an air channel to deliver air to a labyrinth seal as a matter of obvious design choice, as taught by Mason.

13. Claims 31 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida) and US Patent 4,359,871 to Strass (Strass), US Patent 5,246,352 to Kawakami (Kawakami), and US Patent 6,135,639 to Dede (Dede) as applied to claim 29 above, and further in view of US Patent 5,096,376 to Mason et al (Mason).

In reference to claim 31:

Mason teaches:

wherein the said labyrinth shaft seal in said bearing- seal housing assembly receives buffer air from the rotor spool compressor discharge air thru a channel within the shaft compressor rotor (Fig 2, channel in compressor rotor 26, 17) Mowill in view of Yoshida and Strass fails to teach an air supply channel to deliver compressor discharge air to the labyrinth seal. However, it was known in the art to flow compressor discharge air to a labyrinth seal. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the turbine of Mowill/Yoshida/Strass with an air channel to deliver air to a labyrinth seal as a matter of obvious design choice, as taught by Mason.

14. Claim 32 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida) and Official notice.

In reference to claim 32:

Mowill teaches:

A gas turbine engine for generating electricity, comprising:

an engine body; a rotor spool within said engine body having an alternator rotor with retained permanent magnets (HP spool, 20, Fig 1 and 2), *a blade compressor rotor with a shaft and a bladed turbine rotor* (14)*; a compressor inlet within said body; a turbine exhaust duct within said engine body* (inherent)*; an electrical stator within said engine body* (20), *a combustion system within said engine body* (23), *receives pressurized air flow from said spool compressor rotor*

exit for combusting supplied fuel and delivers the combusted gas energy to the said power spool turbine rotor (16);

Yoshida teaches:

having laminats of magnetically attracted material, and electrical wire is located coaxially about and in close proximity to the said alternator rotor and relative rotation within the said stator, cause flux change and subsequent electrical power generation within the said stator wire; (col 4 lines 1-17)

Mowill fails to teach the details of the generator. However, generators were known in the art to comprise magnets, electrical wire, and magnetic material. It was also known to generate electricity through a flux change. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the generator of Mowill with magnets, electrical wire, and magnetic material in order to have the generator function properly, as taught by Yoshida.

Official notice teaches:

an electrical output power insulation block attached to the said engine body; electrical output terminal lugs insertable into said insulation block and said lugs have an outboard threaded end and the inboard end has a sealing means to the said insulation block and is connected to the said stator electrical wire of the electrical stator; retention nuts having communication with threaded outboard terminal lug end and electrical output wire; anti-rotation retention washers having communication with the said retention nuts, output wire, and coacts between the

said electrical terminal lug and insulation block resisting the outboard nut installation torque

Mowill in view of Yoshida fails to teach a power insulation block with wire, retention nuts, and washers. Official notice is taken that it is well known in the art that in order to distribute the power from the engine, power insulation blocks with wire, nuts, and washers are often used. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the engine of Mowill/Yoshida with a power insulation block with wires, nuts, and washers in order to properly distribute power from the engine, as taught by Official notice.

15. Claims 33-34 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida) and US Patent 5,343,690 to Shekleton (Shekleton).

In reference to claim 33:

Mowill in view of Yoshida teaches:

A gas turbine engine for generating electricity, comprising: an engine body; a #2 rotor spool in said engine body, having an alternator rotor with retained permanent magnets, a bladed compressor rotor and a bladed turbine rotor; an electrical stator having electrical wire and laminats with magnetically attracted material, wherein said stator is coaxially about and in close proximity to the said alternator rotor and relative rotation to the said stator inner diameter causes flux change and subsequent electricity generation within the said electrical wire; a

combustion system within the said engine body, receives compressor discharge air from said compressor bladed rotor for combusting supplied fuel and delivery of combusted gas energy to the said power rotor spool turbine rotor; a # 1 rotor spool within said body having a compressor rotor with blades, a shaft and turbine rotor with blades; a ducting means to deliver the said #1 rotor spool compressor rotor pressurized exit air flow to the inlet of the said #2 rotor spool compressor rotor air inlet;. (see rejection of claim 17 above)

Shekleton teaches:

a series of supplemental air tangent start nozzles (130, 134) *within said engine body, in close proximity of the outboard end of the said power spool compressor rotor* (Fig 2) *to impinge starting fluid on the exiting blade surface areas; a means to duct supplemental air to the said start nozzles for power rotor spool rotation start means; an internal combustion system within said engine body having fluid communication with said supplemental start fluid exiting flow from the said #2 rotor spool compressor rotor* (col 2 lines 2-8).

Mowill fails to teach start-up nozzles, located at the "exiting end area of the housing" that direct gases at the compressor blades to accelerate the blades. However, it was known in the art to use start up nozzles to impinge air onto the compressor blades in order to accelerate the blades. It would have been obvious to one of ordinary skill in the art at the time of the invention to include air nozzles directed at the compressor blades in Mowill's engine in order to accelerate the compressor blades and start the engine, as explicitly taught by Shekleton.

In reference to claim 34:

Mowill in view of Yoshida teaches:

A gas turbine engine for generating electricity, comprising: an engine body; a rotor spool in said engine body, having an alternator rotor with retained permanent magnets, a bladed compressor rotor and a bladed turbine rotor; an electrical stator having electrical wire and laminats made of magnetically attracted material, and the said stator is coaxially about and in close proximity of the said alternator rotor whereby relative rotation to the said stator inner diameter causes flux change and subsequent electricity generation within the said wires; a compressor inlet in said engine body; a turbine exhaust duct within said engine body; a combustion system within the said engine body, receives compressor discharge air from said compressor bladed rotor for combusting supplied fuel and delivery of combusted gas energy to the said power rotor spool turbine rotor; said turbine rotor exhaust gas exits said engine body thru said exhaust duct; (see rejection of claim 17 above)

Shekleton teaches:

a series of tangent air start nozzles within said engine body about the compressor rotor exit to direct air onto the compressor blade area; a duct for supplemental air to the said start nozzles to cause rotor spool rotation as start means; said start air exhausts into the compressor exit and downstream into the combustor as supplemental air enhancing pre-rotor-rotation combustion (col 2 lines 2-8).

Mowill fails to teach start-up nozzles, located at the "exiting end area of the housing" that direct gases at the compressor blades to accelerate the blades. However, it was known in the art to use start up nozzles to impinge air onto the compressor blades in order to accelerate the blades. It would have been obvious to one of ordinary skill in the art at the time of the invention to include air nozzles directed at the compressor blades in Mowill's engine in order to accelerate the compressor blades and start the engine, as explicitly taught by Shekleton.

16. Claim 35 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida), US Patent 4,359,871 to Strass (Strass), and US Patent 5,246,352 to Kawakami (Kawakami)

In reference to claim 35:

Mowill in view of Yoshida teaches:

A gas turbine engine for generating electricity, comprising: an engine body; a #2 rotor spool within said engine body, having an alternator rotor with retained permanent magnets, a bladed compressor rotor having an air inlet and exit and a bladed turbine rotor having a gas inlet and exit; an electrical stator within said engine body, having electrical wire, laminats of magnetically attracted material, and said stator is coaxially about and in close proximity of the said alternator rotor where relative rotation to the said stator inner diameter causes flux change and subsequent electricity generation within the said wires; a combustion system

within the said engine body, receives compressor discharge air from the said #2 rotor spool, bladed compressor rotor exit for combusting supplied fuel and delivering of combusted gas energy to the said power rotor spool turbine rotor; a # 1 rotor spool within said engine body, having a bladed compressor rotor with an air inlet and exit, a compressor rotor shaft and a bladed turbine rotor with a gas inlet and exit; an air intake in said engine body having fluid communication to said #1 rotor spool compressor inlet; a turbine gas discharge duct within said engine body having fluid communication with said #1 rotor spool, turbine rotor exit; a ducting means to deliver the said #1 rotor spool compressor rotor exit pressurized air flow to the inlet of the said #2 rotor spool compressor rotor inlet; a ducting means to deliver said #2 spool turbine rotor exiting gas energy to the said # 1 rotor spool turbine rotor inlet; (same rejection as claim 17 above)

Strass and Kawakami teach:

a # 1 rotor spindle sleeve assembly, having outer oil seals (o-rings 33 in Kawakami), *at least one rotor thrust bearing* (inherent in Mowill) *and rotor shaft labyrinth seal retained and within said engine body; a # 1 rotor spool having a compressor rotor shaft, compressor rotor with blades and turbine rotor with blades is insertable into the said rotor spindle sleeve assembly; a rotor thrust bearing, inner diameter retained to the said #1 rotor spool compressor shaft; a rotor retainer means, wherein one end is axially thread adjustable retained to the said engine body and the other end coacts axially restrictive between the said compressor shaft retained thrust bearing outer race and one inboard end of the*

said rotor spindle sleeve assembly; a #1 spool module consisting of the said rotor spindle sleeve, said #1 rotor spool and said rotor retainer device; and furthermore is axially insertable into the engine body

Mowill fails to teach a labyrinth seal. It was known in the art to use labyrinth seals in order to seal the bearing compartments against the gas chambers. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the gas turbine of Mowill with a labyrinth seal in order to seal off the bearing compartments, as taught by Strass. Furthermore, Strass teaches a spool module consisting of a spindle sleeve (18c) and a rotor (2) that is axially insertable into an engine body (18). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the engine of Mowill/Yoshida with a spool module as a matter of obvious design choice, as taught by Strass.

17. Claims 36-37 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,081,832 to Mowill (Mowill) in view of US Patent 4,564,778 to Yoshida (Yoshida) and US Patent 5,343,690 to Shekleton (Shekleton) as applied to claim 34 above, and further in view of US Patent 5,246,352 to Kawakami (Kawakami)

In reference to claims 36-37:

Kawakami teaches:

wherein the said #1 spool module having at least one said rotor bearing outside diameter within the said rotor spindle sleeve assembly, incorporates oil squeeze

film dampening between at least one rotor bearing outer race and said rotor spindle adjacent inner diameter.

wherein the said rotor spindle sleeve assembly outer diameter within the engine body inner receiving adjacent inner diameter incorporates oil squeeze film dampening (col 4 lines 43-65)

Mowill fails to teach an oil squeeze film damper about the bearing housing outer diameter and rotor bearing outer diameter. However, Kawakami teaches multiple oil film dampers between multiple components. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the gas turbine of Mowill with an oil squeeze film damper in between the bearing housing and retained rotor bearing outer diameter in order to dampen vibration, as taught by Kawakami.

Response to Arguments

18. Applicant canceled all previously presented claims in view of the rejections set forth in the first office action and provided new claims. In response the examiner has applied the new rejections set forth above

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW NGUYEN whose telephone number is (571)270-5063. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746

/AN/